

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A process for the preparation of a hydrocyanation catalyst comprising an aqueous solution of at least one water-soluble phosphine and nickel, said process comprising: (a) admixing an aqueous solution of said at least one water-soluble phosphine with a nickel hydroxide to form a mixture, (b) adding hydrogen cyanide or a compound which generates hydrogen cyanide to the mixture thus formed, (c) stirring the resulting mixture until the nickel hydroxide is at least partially dissolved, and (d) reducing at least a portion of the nickel of said at least partially dissolved nickel hydroxide to the zero oxidation state.

2. (Previously Presented) The process as defined by Claim 1, comprising maintaining stirring in step (c) at a temperature of less than 100°C.

3. (Previously Presented) The process as defined by Claim 2, comprising maintaining stirring in step (c) at a temperature ranging from 20°C to 80°C.

4. (Previously Presented) The process as defined by Claim 1, comprising adding nickel in the zero oxidation state to the mixture prior to the reduction stage (d) thereof.

5. (Previously Presented) The process as defined by Claim 1, wherein the hydrogen cyanide in step (b) is added in an amount at least equal to the stoichiometric amount for converting nickel hydroxide into nickel cyanide.

6. (Previously Presented) The process as defined by Claim 5, wherein the amount of hydrogen cyanide added in step (b) is a 30% to 200% stoichiometric excess of the amount of hydrogen cyanide for converting nickel hydroxide into nickel cyanide.

7. (Previously Presented) The process as defined by Claim 1, wherein the amount of said at least one water-soluble phosphine, expressed as number of moles per 1 mol of nickel, ranges from 0.5 and 2,000.

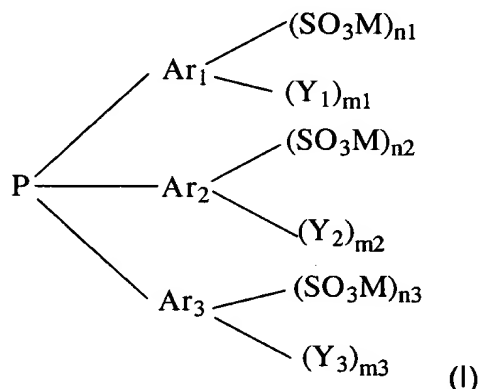
8. (Previously Presented) The process as defined by Claim 7, wherein said amount ranges from 2 to 300.

9. (Previously Presented) The process as defined by Claim 1, wherein step (d) comprises reducing said nickel with gaseous hydrogen.

10. (Previously Presented) The process as defined by Claim 1, wherein step (d) comprises reducing said nickel electrochemically.

11. (Previously Presented) The process as defined by Claim 1, wherein step (d) comprises reducing said nickel with an organic/inorganic reducing agent.

12. (Previously Presented) The process as defined by Claim 1, wherein said at least one water-soluble phosphine has the structural formula (I):



in which Ar_1 , Ar_2 and Ar_3 , which are identical or different, are each an aryl radical; Y_1 , Y_2 and Y_3 , which are identical or different, are each an alkyl radical having from 1 to 4 carbon atoms, an alkoxy radical having from 1 to 4 carbon atoms, a halogen atom, a CN group, an NO_2 group, an OH group, an NR_1R_2 radical, wherein R_1 and R_2 , which are identical or different, are each an alkyl radical having from 1 to 4 carbon atoms; M is an inorganic or organic cationic residue selected, such that the compound of formula (I) is soluble in water, from the group consisting of H^+ , cations derived from alkali metals or alkaline earth metals, $\text{N}(\text{R}_3\text{R}_4\text{R}_5\text{R}_6)^+$, wherein R_3 , R_4 , R_5 and R_6 , which are identical or different, are each an alkyl radical having from 1 to 4 carbon atoms or a hydrogen atom, and metal cations, the benzenesulfonic acid salts of which are soluble in water; m_1 , m_2 and m_3 which are identical or different, are each an integer ranging from 0 to 5; and n_1 , n_2 and n_3 , which are identical or different, are

each an integer ranging from 0 to 3, at least one of these being equal to or greater than 1.

13. (Previously Presented) The process as defined by Claim 12, wherein said at least one water-soluble phosphine has the structural formula (I) comprising an alkali metal or alkaline earth metal salt, ammonium salt, or quaternary ammonium salt of (3-sulfo-4-methylphenyl)di(4-methylphenyl)phosphine, (3-sulfo-4-methoxyphenyl)di(4-methoxyphenyl)phosphine, (3-sulfo-4-chlorophenyl)di(4-chlorophenyl)phosphine, di(3-sulfophenyl)phenylphosphine, di(4-sulfophenyl)phenylphosphine, di(3-sulfo-4-methylphenyl)(4-methylphenyl)phosphine, di(3-sulfo-4-methoxyphenyl)(4-methoxyphenyl)phosphine, di(3-sulfo-4-chlorophenyl)(4-chlorophenyl)phosphine, tri(3-sulfophenyl)phosphine, tri(4-sulfophenyl)phosphine, tri(3-sulfo-4-methylphenyl)phosphine, tri(3-sulfo-4-methoxyphenyl)phosphine, tri(3-sulfo-4-chlorophenyl)phosphine, (2-sulfo-4-methylphenyl)(3-sulfo-4-methylphenyl)(3,5-disulfo-4-methylphenyl)phosphine or (3-sulfophenyl)(3-sulfo-4-chlorophenyl)(3,5-disulfo-4-chlorophenyl)phosphine.

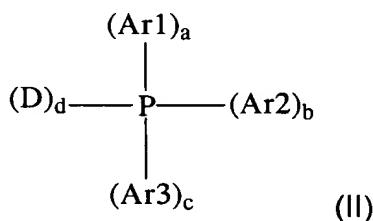
Claim 14 (Canceled)

Claim 15 (Canceled)

16. (Previously Presented) A hydrocyanation catalyst comprising an aqueous solution of at least one water-soluble phosphine and nickel, wherein said catalyst is prepared by the process which comprises (a) admixing an aqueous solution of said

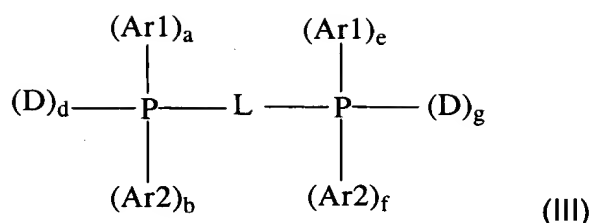
at least one water-soluble phosphine with a nickel hydroxide to form a mixture, (b) adding hydrogen cyanide or a compound which generates hydrogen cyanide to the mixture thus formed, (c) stirring the resulting mixture until the nickel hydroxide is at least partially dissolved, and (d) reducing at least a portion of the nickel of said at least partially dissolved nickel hydroxide to the zero oxidation state.

17. (New) The process as defined by Claim 1, wherein said at least one water-soluble phosphine has the structural formula (II) or (III):



in which Ar1 and Ar2, which are identical or different, are each aryl radicals or substituted aryl radicals bearing one or more of the following substituents: OH; N(R)₂ wherein the radicals R which are identical or different, are each a hydrogen atom or an alkyl radical having 1 to 4 carbon atoms; halogen atoms; alkyl or alkoxy radicals having from 1 to 4 carbon atoms; or the hydrophilic groups -COOM, -SO₃M or -PO₃M, wherein M is an inorganic or organic cationic residue selected from the group consisting of hydrogen, cations derived from alkali metals and alkaline earth metals, ammonium cations N(R)₄⁺ wherein the radicals R, which are identical or different, are each a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms, and cations derived from metals, the arylcarboxylic acid, arylsulfonic acid or arylphosphonic acid salts of which are soluble in water; Ar3 is a substituted aryl

radical bearing one or more of the following substituents: OH; $N(R)_2$ wherein the radicals R which are identical or different, are each a hydrogen atom or an alkyl radical of 1 to 4 carbon atoms; halogen atoms; alkyl or alkoxy radicals having from 1 to 4 carbon atoms; or the hydrophilic groups $-COOM$ or $-PO_3M$, wherein M is an inorganic or organic cationic residue selected from the group consisting of hydrogen, cations derived from alkali metals and alkaline earth metals, ammonium cations $N(R)_4^+$, wherein the radicals R, which are identical or different, are each a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms, and metal cations, the arylcarboxylic acid or arylphosphonic acid salts of which are soluble in water; with the proviso that at least one of the substituents of Ar₃ is a hydrophilic group as defined above; a is 0 or 1; b is 0 or 1; c is an integer ranging from 0 to 3; D is an alkyl radical, a cycloalkyl radical or an alkyl or cycloalkyl radical substituted by one or more of the following substituents: OH; $N(R)_2$ wherein the radicals R which are identical or different, are each a hydrogen atom or an alkyl radical or 1 to 4 carbon atoms; a halogen atom; alkyl or alkoxy radicals having from 1 to 4 carbon atoms; or a hydrophilic group $-COOM$, $-SO_3M$ or $-PO_3M$, wherein M is an inorganic or organic cationic residue selected from the group consisting of hydrogen, cations derived from alkali metals and alkaline earth metals, ammonium cations $N(R)_4^+$, wherein the radicals R, which are identical or different, are each a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms, and metal cations, the arylcarboxylic acid, arylsulfonic acid or arylphosphonic acid salts of which are soluble in water; d is an integer ranging from 0 to 3; and the sum (a+b+c+d) is equal to 3;



in which Ar1, Ar2 and D are as defined above for the formula (II); a, b, e, and f are each 0 or 1; d and g are each an integer ranging from 0 to 2; the sum (a+b+d) is equal to 2; the sum (e+f+g) is equal to 2; and L is a single bond between the two P atoms or a divalent hydrocarbyl radical, or a radical derived from a heterocycle comprising one or two oxygen, nitrogen or sulfur atoms in the ring, said heterocycle radical being bonded directly to one of the phosphorus atoms or both phosphorus atoms of (III) or being bonded to one of the phosphorus atoms or to both via a linear or branched alkylene radical having from 1 to 4 carbon atoms, with the proviso that the ring or rings which are optionally moieties of the divalent radical L optionally bear one or more substituents.

18. (New) The process as defined by Claim 17, wherein said at least one water-soluble phosphine having the structural formula (II) or (III) comprising tris(hydroxymethyl)phosphine, tris(2-hydroxyethyl)phosphine, tris(3-hydroxypropyl)phosphine, tris(2-carboxyethyl)phosphine, a sodium salt of tris(3-carboxyphenyl)phosphine, tris(3-carboxypropyl)phosphine, tris(4-trimethylammoniumphenyl)phosphine iodide, a sodium salt of tris(2-phosphonoethyl)phosphine, bis(2-carboxyethyl)phenylphosphine, a sodium salt of 2,2'-bis[di(sulfophenyl)phosphino]-1,1'-binaphthyl, a sodium salt of 1,2-

bis[di(sulfophenyl)phosphinomethyl]cyclobutane (CBDTS), 1,2-

bis(dihydroxymethylphosphino)ethane, 1,3-bis(dihydroxymethylphosphino)propane,

or a sodium salt of 2,2'-bis[di(sulfophenyl)phosphinomethyl]-1,1'-binaphthyl.